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INTRODUCTION TO SPECULATIVE LOGIC AND PHILOSOPHY.

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Preliminary Remarks.

That there is a Logical science is admitted on all hands, and that this science is of paramount importance for purely speculative as well as for practical purposes is a point upon which all men seem to agree. For although in practical life men are mostly guided by opinion, by interest, by passion and caprice, yet there is not one who is not anxious to strengthen and develop his logical powers—"the faculty of reasoning" as it is generally termed—either to apply it to the peculiar object of his industry, or to outdo the adversaries whom every one has to meet and to contend with in the struggles of life. This it is which, with Mathematics, makes Logic the most popular amongst abstract sciences. For every one feels, as if by instinct, that to act rightly one must think rightly, and consequently that the science which inquires into the rules of thought must be worthy of the attention of all rational beings; and as there is neither science nor art, nor any practical avocation, which is not founded upon thought, and does not require the normal exercise of the logical faculties, the conclusion naturally drawn therefrom is that Logic is a science embracing within its boundaries the whole range of human knowledge and activity.

But if Logic, when considered in its abstract notion, takes so high a standing even in popular opinion, it little answers the general expectation when considered in its present shape and as embodied in the various logical treatises; and this accounts for the fact of Mathematics having seen the number of its worshippers increased, and the field of its researches and application becoming more and more enlarged, whilst Logic has fallen into neglect and decay, and if still taught in colleges and schools it is more owing to the tradition of the scholastic *curriculum* than to the earnest desire of becoming acquainted with it; and this in spite of its intrinsic and acknowledged importance, not only with respect to other sciences in general, but to Mathematics itself, mathematical knowledge supposing the existence and the application of Logical laws. The fact is that this science, the object of which is to strengthen and develop the rational powers of the mind as it is now constituted, seems rather to have been intended to mislead and vitiate them. For its theories consist of nothing but an aggregate of empty formulas, of arbitrary rules, and artificial proceedings, which are neither consistent with themselves nor with the things to which they are applied; and it is only by false teaching and false habits of thought, and by a distortion of facts, that we are brought to think that *concrete objects*, either physical or metaphysical, are apprehended by our mind through, and according to, laws as they are laid down by Logic. For if the matter be truly investigated it will be seen that they are apprehended and known in spite of and in contradiction to them.

The failures of Logic have long been felt by philosophers, and several attempts have been made, since Ramus, to remodel this science. But I do not hesitate to say that all attempts have failed, and not only failed but are merely an inferior reproduction of the theories they propose to overthrow and replace. For there is nothing in Bacon's Organon or Descartes' philosophy,* as far as the fundamental principles of Logic are concerned, which could not be found in the Aristotelian Organon; and those who have seriously attended to these matters, and whose judgment is not biassed by national prejudices and vanity, will agree, I trust, with me in saying that the Aristotelian Organon surpasses all subsequent logical theories by the range and accuracy of its inquiries, and by the scientific character with which it is stamped. As to Bacon's Organon, the long cherished delusion that he had discovered a method and logical proceedings unknown to Aristotle and ancient philosophers has been exploded by modern criticism and a more accurate knowledge of ancient philosophy.

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* *Discours sur la Méthode et Règles pour bien conduire ses Pensées.*

The common failure of all logical theories—of the Aristotelian as well as others, but more especially of the latter than of the former, as will be shown in the course of this inquiry—the error which has precluded the authors of these theories from establishing Logic on a sound and firm basis, and which vitiates, as it were, the whole structure, is to be found in the very principle from which they start, in the very notion they form of Logical Science. For they have, one and all, considered Logic as a *formal* science, as a science whose business it is to analyze and describe the merely *subjective forms* of thoughts, i.e. forms that possess a value and meaning as far as the mind is concerned, but which have no *objective* bearing or consubstantial connection whatever with the things the mind apprehends and knows through them.

This is the view philosophers have generally taken of Logic, and starting from this notion they have curtailed it, and stripped it, as it were, of all substance, leaving nothing but a mere *form*, which, for the very reason that it has been severed from its substance and considered apart from concrete and real objects—either experimental or metaphysical—is anything but a *rational form* and *organon* of truth. Indeed, from Aristotle down to the present time, it would seem that Logicians, instead of enlarging and completing the field of researches marked out by the Greek philosopher, have exerted all their ingenuity in compressing it into a narrower compass by cutting off some of its essential branches and reducing it to its *minimum.* Hence the arbitrary and superficial distinctions of *Metaphysical* and *Logical Truth*, of *Reason* and *Reasoning*, of Logic as the science of *mere Possibilities* and Metaphysics as the science of *eternal and absolute Realities*—distinctions which, whilst breaking asunder the unity of the mind and knowledge, and with the unity of knowledge the unity also of things, have made of Logic a sort of *caput mortuum*, wherein the mind is unable to derive any rational guide or real criterion either for practical or speculative purposes.

Such is even at the present moment the position of Logical Science, though it is more than half a century since the renovation of Logic was accomplished by one of the most extraordinary thinkers that ever existed. I mean Hegel.

When Hegel's *Logic* appeared* it was hailed in Germany by the philosophical world with admiration; nay, with enthusiasm. It was felt that it would do away with old Logic, and inaugurate a new era not only for Logic and Philosophy, but for Science in general. For Logic being a universal science, there is no province of knowledge to which its influence does not extend; there is no theory, nor thought, relating either to God, or to Nature, or to ourselves, which does not involve some logical notion or law; and consequently the renovation of Logic must needs carry with it new mental habits and criteria, new methods and principles, in all provinces of science.

That Hegel's Logic, when better known, when a blind attachment to old formulas and a sort of mechanical use of them shall have given way before rational and demonstrative principles, will supersede old Logic, does not leave a shade of doubt in my mind. And the objection raised by some against the Hegelian philosophy, namely, that this philosophy which once held sway has now been falling off; that his disciples are scattered and discouraged, and hardly acknowledge the doctrine of their master; that consequently this doctrine *a fait son temps*, and that it was a transitory phase of the human mind, a bold but sterile attempt to explain the absolute laws of the Universe,—this objection has, in my opinion, very little, if any, value.. To those who assume that the Hegelian philosophy has lost its influence, may be opposed the contrary assumption. It may be said that what it has lost in *intensity* it has acquired in *extent*, and that its influence which was formerly confined to Germany is now spread all over Europe and beyond the seas, as is attested by private and public accounts, and by publications relating directly or in-directly to the Hegelian philosophy.* Moreover, were the objection correct as to its influence being on the wane, the inference which some would draw therefrom against its intrinsic worth and its future action and development does not follow at all from the premises. The same has happened to the Hegelian philosophy as to that of Plato and Aristotle, and what must happen to all comprehensive and profound systems, and, we may add, to all great historical events. There is a reaction and there is a stop. There is a reaction brought about by various causes, namely: by the past; by old habits, interests, and tradition; by ignorance, indifference, and the difficulty of embracing the full and real meaning of a theory; and also by impatience and disappointment at not seeing ideas immediately realized. But this is the eclipse and not the evanescence of the planet. Plato's and Aristotle's philosophy was followed, or, as the anti-Hegelian would say, superseded, by the Stoic, the Epicurean, &c. &c.; yet this did not prevent the former from reviving as vigorously—nay, more vigorously, perhaps, than when it first came forth from the brain and mouth of their immortal authors. For, setting aside the Alexandrian school and the Roman philosophy, which are chiefly developments or reproductions of Platonism and Aristotelianism, the influence and doctrines of the latter were never more widely spread, or more indisputably established, than in the middle ages and at the *renaissance;* and even at the present day, in spite of the disdainful attacks and pompous promises of Bacon and Descartes, Greek philosophy stands as the foundation of all serious philosophical training, and there are few works upon which of late years more attention and labor have been bestowed by distinguished thinkers, commentators, and editors, than upon Plato and Aristotle. Therefore the momentary obscuration of these great luminaries, far from being a symptom of decline, is the test of their power and vigorous youth, as it shows how vital is the spirit that lives in them, which, like the phœnix from its ashes, comes out from among the ruins that time and generations heap up to obstruct their passage, breathing an ever new and immortal life.

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* It was published in Nuremberg in 1812.

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* Mr. Remusat, in the paper "*Un Voyage dans le Nord de l'Italie,*" published in the *Reveux des deux Mondes* (1st October, 1857), says, "Italy has her Hegelianism. It is the necessity of our time—*c'est la nécessité du temps.*" It would be more correct to say—it is the necessity of the human mind.

That Hegel belongs to the family of these extraordinary and divine-born thinkers, and that his theories will stand the proof of time, cannot, in my opinion, have the slightest doubt in an unprejudiced mind that will give the subject sufficient attention. For his marvellous speculative power, the vast and profound grasp of his mind embracing all provinces of science, and the faculty—unequalled by any other thinker, not excepting Plato and Aristotle—of systematizing knowledge, and deducing and connecting ideas, assigns him one of the highest places among philosophical geniuses.

CHAPTER I.

§ 1. *Definition of Logic.*

Nothing, perhaps, shows better the unsatisfactory state and the inadequacy of Logical Science than the various and conflicting opinions as to its object and the exact limits of its province. For to some it is a system of rules, a method for forming clear ideas, and for guiding Reason;* to others it is the Science of Argumentation and Reasoning, which faculty they carefully distinguish from Reason.† Kant considers Logic as a *formal* science, the science of the necessary *forms* or laws of thought, and, according to his own expression, of the general use of the Understanding, independent of all particular object or subject-matter, supplied either by Reason or by Experience.‡ There are those who exclude from Logic all questions relating to Ideas, their origin and their objective meaning; there are others, on the contrary, who not only attribute them to Logic, but who go so far as to include in it the *Problem of Certainty*, besides other miscellaneous matters, as the problem of probability, of miracles, &c.§

This divergence of opinion, and this uncertainty as to the precise object and limits of its province, which would be a source of error in any other science, by misleading judgment, and by producing false consequences and applications, is much more so in a science which is held out as the organon of inquiry, as the method by which truth is to be discovered and tested. For the confusion and error that creep into this the universal science will, for this very reason, invade all the other branches of knowledge.

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* Descartes and Watts.

† This is the view more commonly taken of Logic.

‡ Kant's Logic, published by Jaesche.

§ The Logic of Port Royal, for instance.

The difficulty of forming a correct notion of Logic, of its limits and real bearing, arises from various causes, but chiefly from the absence of a systematic knowledge, and of a close inquiry into the nature of *Form*, and of Logic itself. In fact, where there is no system, i.e. where there is not a whole, and where the parts and the whole are not rationally adjusted and connected together, there is only a desultory and fragmentary knowledge; and a particular science which is not systematically arranged, and is not the part of a whole, must necessarily mistake its object, its limits, and the relation in which it stands to other sciences. And so it is with Logic. For this science is handled irrespectively of the relation in which it stands to other sciences, or, when started, the question is answered in a vague and superficial manner, as, for instance, that Logic being the Science of Reasoning, and, as reasoning is needed in all sciences, Logic must necessarily bear upon all sciences; but, what is the nature of this relation, how far and in which way Logic is connected with other sciences, which is the limit that separates and which is the nexus that unites them,—this, the most important point, Logicians do not state; or if, to give a more accurate definition of Logic, they add that it is the Science of the *Form and Method* by which we dispose our thoughts in order to attain Truth, here too we are left in ignorance as to the nature of this Form and Method, and of this relation to the objects of Thought; whether, for instance, there is between the object —finite or infinite, physical or metaphysical—and the *Form* a community of essence, or whether the *Form* is a mere *subjective organon*, a contrivance for the better arrangement of our conception; whether the *Form* is eternal or temporal, and, if temporal, how eternal objects can be known through it; thus overlooking or leaving unanswered the questions that are most important, and without which no correct notion of Logic can be formed.

Let us, then, in order to arrive at the right conception of

Logic, inquire into the nature of this science, by pointing out, in the first place, the principles upon which old Logic is founded, and the inadvertence and misconception which have brought forth these principles. Logic must be established.

§ 2. *Outlines of Formal Logic.*

That Logic is a universal science is a point on which all philosophers agree. In fact, whether Logic be the Science of *Forms*, or the Science of *Reasoning*, the unity of the mind as well as the unity of science requires that there should be a universal science, extending to all departments of thought and knowledge. But if, on the one hand, it is a universal science, it must, on the other, have its own peculiar object, its own peculiar field of researches; it must, in other words, be a particular Science. For were it a universal Science only it would be the only Science, and all other sciences would be but different parts and divisions of Logic. The question, therefore, is how Logic can be both a universal and a particular science, to what extent and in what sense it embraces all other sciences, so as the latter may be considered as various branches of Logic, and in what sense it constitutes a science *sui generis*, having a distinct and limited object.

Now, when we analyze thought, we find two elements in all thoughts, namely, the *Thing* itself—either merely thought, or signified externally by words—and the *manner* in which the various things are disposed and connected in and by thought; there are, in other words, what has been called the *Matter* or *Contents*, and the *Form* of Thought. For instance, if in the proposition "*Man is mortal*" we do not consider in any way what relates either to *man* or to *mortal*—whether there is a man or what it is, whether there is a mortal thing and in what mortality consists, &c.—but only the way in which these two and all similar terms are or may be connected, we will have the *general Form* of this proposition. Again, by the same analytical process we will discover in an argument the same elements, i.e. the *Terms* and the *Form*, through which this relation is apprehended by the mind; and if we apply this process to the various forms through which we apprehend truth, we would obtain the fundamental principles upon which old Logic stands; so that we would have, on the one hand, the *matter of Thought* and the Sciences—such as Metaphysics and Natural Sciences—which inquire into the *matter*, and, on the other, the *Form* of thought, and the Science which inquires into the *Form*, namely, Logic.

The question is now this: are these the rational and real boundaries of Logic; and how can Logic, or any other Science whatever, be constituted if all *matter* of knowledge is excluded therefrom? And even granted that Logic is the Science of *Form*, is the Form such as it has been conceived by old Logic the truly rational Form? In order to place these points in a proper light, let us draw the outline of Logic such as it has been realized to the present day.

As there can be no thought without some defined forms, there must be some general elements of thought. These elements have been called by some logicians *Terms*, by others *Categories* or *Concepts*, by others *Genus* and *Species*.

Now if, from terms or categories, or whatever name they be called, according to what we have stated, we subtract their *objective* and *material value*—be these derived from experience or from Reason—there will be only left their *magnitude* or *quantity*, and Logic will be the Science of the *Quantity of Thought*.* Hence the relation—or, to speak more properly, the confusion—of Logic and Mathematics. For Terms, when stripped of their *contents*, are like numbers and geometrical figures, and their combination may be compared to a numerical proportion or to concentric circles.†

According to this criterion, the essential character of terms will be what logicians call Comprehension and Extension, which are a certain number—a sum—of characters belonging to each term. Let us take, for instance, the term *Tree*. Tree is a *genus* and a *species*. It is a genus if we consider the inferior narrower terms—oak, fir, apple, &c.—it contains; it is a species if we consider the superior or wider terms—organic matter, being, &c.—in which it is contained. The aggregate of the former character constitutes its *extension*, the aggregate of the latter its *comprehension*. Hence follows, 1°. that the Comprehension and the Extension are in inverse ratio, and consequently that whilst the one increases the other diminishes, the Comprehension increasing in a series of terms from upwards downwards, and the Extension from downwards upwards; 2°. that if we picture to ourselves the whole series of terms, we shall see that at the one end of the series —the upper end—there is a term having the widest Extension but no Comprehension, and at the opposite end—the lowest end—there is a term possessing the widest Comprehension but no Extension.

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* If, for instance, from the term *man* we take away the *real existence* and the *qualities* of man, the only character or entity which can possibly remain in *man* will be his quantity, i.e. man considered as a *whole*, or as a *part*, or as an *individual*.

† Euler, for instance, compares syllogisms to three concentric circles, the middle circle playing the part of middle term—(*Letters to a German Princess*). Ploucquet identifies *Logic* and *Reckoning*, and, after having converted syllogism into calculation, he concludes by the following words: "Posse etiam rudes mechanice totam logicam doceri, uti pueri arithmeticam docentur, ita quidem, ut nulla formidine in ratiociniis suis errandi, torqueri vel fallaciis circumveniri possint, si calculo non errant." It must be said that Leibnitz had already set the example to this superficial and illogical manner of treating Logic by submitting syllogism to combinatory calculation, by calculating the number of combinations into which the proposition may be adjusted in syllogism. (See *Leib. Op.* T. II. p. 1.)

Now terms, considered singly and apart from all connection between them, are but indeterminate elements which do not constitute any positive thought. This property they acquire by their mutual association, and by reflecting, as it were, a part of themselves upon each other. Indeed, their own constitution points to this association. For as each term possesses both Comprehension and Extension, each term points to the term of which it forms either the Comprehension or the Extension.

Now the most elementary and fundamental connection of terms is the *Proposition*. The proposition is nothing but the development and (as it were) the actual position of the relation of terms—of the relation virtually implied in each term separately considered; in other words, the proposition is the actual *affirmation* of the twofold elements contained in each term. In the terms "man" and "mortal," for instance, there is a certain number of characters, some of which constitute their Comprehension and some their Extension. With regard to the term "mortal," *man* is a part of its Extension; and with regard to the term "man," *mortal* is a part of its Comprehension: so that these two terms, as parts of a whole —of the whole series of terms and thought—stand in a reciprocal and inverse relation, which relation is affirmed by the insertion of the copula *is*. In the proposition, "Man is mortal," *man*, being the *species*, constitutes a part of the Extension of *mortal;* and *mortal*, being the *genus*, constitutes a part of the Comprehension of *man*.

Now, as the Proposition evolves itself out of Terms, so likewise the Syllogism evolves out of the Proposition. And as a series of Terms virtually contains a series of Propositions, so a series of Propositions virtually contains a series of Syllogisms. Nay, Syllogism is already contained in Terms, and, like the Proposition, it is but the actual development of the elements involved in Terms. For each term possessing Comprehension and Extension, i.e. being so constituted as to form, on the one side the Comprehension, and on the other the Extension, of other terms, not only points to a Proposition, but to a Syllogism. The terms "man," "mortal," "plant," "white," "good," &c., possessing each of them these twofold sides, may be combined in a syllogism; and they may moreover, each in its turn, be a middle term, a major and a minor term, in different syllogisms.

On these considerations, the fundamental principle of the Syllogistic theory, the *principium de continenti et de contento*—a term that *contains and is contained*—rests. For each term by its Extension—as genus—*contains*, and by its Comprehension—as species—*is contained;* so that each term is, in its turn, a middle term, a major and a minor extreme.

In the syllogism,

"All created beings are mortal:
Man is a created being;
Therefore," &c.,

man is the minor extreme. In the syllogism,

"All men are mortal:
The Europeans are men;
Therefore," &c.,

man is become middle term. In another syllogism it would become major extreme, and so it should be with the other terms.* Thus the whole series of terms is a series of propositions and syllogisms, and these latter are only a development of the elementary theory of terms realized as *genus* and *species*, or as *quantities* either containing or being contained in other quantities.

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* The principle of "*De continenti et de contento*" is more specially applied by logicians to the *middle term*, which contains the *minor extreme*, and is contained in the *major extreme*. But if we take a larger view of the matter, and consider a series of syllogisms, we shall see that not only the middle term of a single syllogism, but all terms, contain and are contained. Let us take A, B, C, and suppose B to the middle term; B would contain and be contained. But B may be also a major or a minor extreme, and A or C a middle term, in another syllogism.

Now the complex of these forms and operations constitutes Method, which, as we have stated, is a mere *subjective organon* of knowledge, an *ensemble* of rules guiding the mind in the discovery of Truth, but being neither Truth itself, nor having any *objective* relation with it; so that when we reason, define, divide, &c., we perform operations which lead the mind to the knowledge of things, but which possess no existence whatever without the mind, nor bear in any manner upon the nature of the things themselves. Now the condition of all thought and knowledge is that these should not deny or (as it were) destroy themselves. Consequently, to the above rules and principles must be added the *principle of Contradiction*, called also (by Kant) the "principle of Identity," which may be enunciated as follows: "A thing must be identical to itself," or "A thing cannot be other than itself at the same time and in the same respect"—a principle which is held out as the highest criterion of knowledge and truth.

These are the main features and principles of old Logic, of the Logic which claims Aristotle for its founder—with what reason we shall see hereafter—which has been for ages and is still officially taught, and forms the frame-work of all logical writings published until Hegel's *Logic*, whatever may be the difference in their external arrangement and some secondary points.

§ 3. *Is Aristotle the founder of Formal Logic?*

Though this question has only an historical and extrinsic value, yet, owing to the greatness of the name, to the influence which his writings exercise, and will exercise in future ages, and to the fact that his logical disquisitions are and will be the starting-point of all logical studies, it is important for the guidance of the student, as well as for historical truth and for science's sake, to bring this point to its proper light, and to see what is Aristotle's true notion of Logic.

That Aristotle did not clearly perceive either the object of Logic, or the link which connects this with other sciences—

with Metaphysics, for instance; that there is a tendency in his theories to reduce all logical principles and operations to the empty formulas and figures of formal Logic, I will readily admit. But it does not follow therefrom that the Greek philosopher considered Logic as a mere science of *subjective forms*, absolutely separating it from what has been subsequently called Ontology and Metaphysics. For the most cursory glance at his writings will convince the reader, that, pursuing, like Plato, the unity of knowledge, he applied himself to connecting Logic with Metaphysics, by placing them on a common ground, and by attributing to them the same order of researches. Thus, after having, in his Logic, laid down the *Categories* as principles of *Thought*, in his Metaphysics he considers them as attributes of *Being*. It is the the same relation he has in view when in both the same writings he examines *the principle of Contradiction*, or when he introduces in his *Analytics* as well as in his *Book of the Soul* his *theory of the Intellect*, which is intimately connected with his theory of Being or Essence—*Entelechia*. Indeed, within the limits of Logic we find Aristotle occupied in defining and enlarging the object of this science, and inquiring into the material and objective meaning of its laws. For after having analyzed the Proposition in its general and indeterminate form, he analyzes it in its more determinate and more objective meaning (in his theory of *Modal*); and after having considered the *middle term* as *Species*, and in its *quantitative* relation with the *extremes* (*First Analytics*), he considers it from the point of view of *Cause* and *Essence* (*Second Analytics*), connecting here also Logic with his ontological theories, and pointing out the *essence* of things as the absolute *middle term* or principle of demonstration, in which the demonstration and the thing demonstrated, the *form* and the *matter* of thought, are intimately blended and raised to the identity of their nature.

This is Aristotle's real conception of Logic, as it is proved by his writings; and those who appeal to him to justify the separation of Logic and Metaphysics, do it either from obstinacy, or from ignorance and want of an accurate and comprehensive survey of his writings.